

REMARKS

Applicant respectfully requests reconsideration and allowance of the subject application in view of the amendments and the remarks to follow. Claim 30 is amended and new claims 56-71 are added. Claims 26-71 are 5 pending in the application.

The amendment to claim 30 addresses minor informalities noted during review, however, this amendment is not intended to alter the scope of the claims. New claims 56-71, and the amendment to claim 30, are supported at least by text appearing at p. 6, line 5 through p. 18, line 2 of the application as 10 originally filed. No new matter is added by new claims 56-71. New claims 56-64 are similar to claim 26 et seq. but differ in scope. New claims 65-67 are similar to claim 35 et seq. but differ in scope. New claims 68-71 are similar to claim 38 et seq. but differ in scope. New claims 56-71 distinguish over the art of record and are allowable.

35 U.S.C. § 102

Claims 26, 28, 30-36, 38, 39, 41, 43, 45, 47, 48-50, 52, 53 and 55 stand rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6,421,279 B1 to Jones et al. (hereinafter "Jones").

5 Anticipation is a legal term of art. Applicant notes that in order to provide a valid finding of anticipation, several conditions must be met: (i) the reference must include every element of the claim within the four corners of the reference (see MPEP §2121); (ii) the elements must be set forth as they are recited in the claim (see MPEP §2131); (iii) the teachings of the reference 10 cannot be modified (see MPEP §706.02, stating that "No question of obviousness is present" in conjunction with anticipation); and (iv) the reference must enable the invention as recited in the claim (see MPEP §2121.01). Additionally, (v) these conditions must be simultaneously satisfied.

The §102 rejection of claims 26, 28, 30-36, 38, 39, 41, 43, 45, 47, 48-50, 15 52, 53 and 55 is believed to be in error. Specifically, the PTO and Federal Circuit provide that §102 anticipation requires that each and every element of the claimed invention be disclosed in a single prior art reference. *In re Spada*, 911 F.2d 705, 15 USPQ2d 1655 (Fed. Cir. 1990). The corollary of this rule is that the absence from a cited §102 reference of any claimed element negates the 20 anticipation. *Kloster Speedsteel AB, et al. v. Crucible, Inc., et al.*, 793 F.2d 1565, 230 USPQ 81 (Fed. Cir. 1986).

No §103 rejection has been lodged regarding claims 26, 28, 30-36, 38, 39, 41, 43, 45, 47, 48-50, 52, 53 and 55. Accordingly, if Applicant can demonstrate that Jones does not disclose any one claimed element with respect 25 to claims 26, 28, 30-36, 38, 39, 41, 43, 45, 47, 48-50, 52, 53 and 55, the §102 anticipation rejection must be withdrawn, and a subsequent non-Final action

made with a different rejection in the event that the Examiner still finds such claims to be not allowable.

Applicant notes the requirements of MPEP §2131, which states that "TO ANTICIPATE A CLAIM, THE REFERENCE MUST TEACH EVERY

5 ELEMENT OF THE CLAIM." This MPEP section further states that "'A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.' *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). 'The identical invention must be shown in as
10 complete detail as is contained in the ... claim.' *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989). The elements must be arranged as required by the claim, but this is not an ipsissimis verbis test, i.e., identity of terminology is not required. *In re Bond*, 910 F.2d 831, 15 USPQ2d 1566 (Fed. Cir. 1990)."

15 To clarify the nature of anticipation, Applicant notes the following portion of 35 U.S.C. §103(a):

20 A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

25 This language sets forth Congressional intent in clear and exact terms as to what does or does not comprise anticipation, as compared to unpatentability. The reference must contain, within its four corners, **exactly** the subject matter of the claim, as it appears in the claim, in order to support a valid finding of
30 anticipation.

Jones is directed to a "method and apparatus for predicting and limiting maximum printhead chip temperature in an ink jet printer" (Title). Jones describes (Abstract): "A method of controlling a temperature of a print chip of a printhead in an ink jet printer includes providing a memory device within the printer. Ink is emitted from the printhead. Temperature data associated with the print chip during the emitting step is recorded. A thermal resistance value associated with the printhead and/or a thermal capacitance value associated with the printhead is calculated. The calculating is dependent upon the recorded temperature data. The thermal resistance value associated with the printhead and/or the thermal capacitance value associated with the printhead is stored in the memory device. A temperature of the print chip at a future point in time is estimated based upon a number of ink drops to be emitted by the printhead before the future point in time, and the thermal resistance value associated with the printhead and/or the thermal capacitance value associated with the printhead. The thermal resistance and/or the thermal capacitance values vary with the print power, target temperature, and heatsink temperatures. The estimated temperature is compared to a predetermined limit temperature. If the estimated temperature exceeds the predetermined limit temperature, the number of ink drops to be emitted by the printhead before the future point in time is reduced."

In contrast, claim 26 recites "A process for managing temperature in a printer, comprising: preprocessing a file into a plurality of swaths; preprocessing each of the swaths into a plurality of cells; calculating an estimated peak temperature for each printhead in printing each of the plurality of cells; and printing the swath in response to the estimated peak temperature for each printhead in printing, each of the cells being below a predetermined maximum temperature", which is not taught or disclosed by Jones.

The Office Action states (page 2) that Jones discloses "calculating an estimated peak temperature for each printhead in printing each of the plurality of cells" at col. 1, line 67 through col. 2, line 3 and col. 2, lines 42-45. The Office Action also states (page 2) that Jones teaches "A peak temperature for printing a group is estimated based on analyzing drop counts in the group."

5 Estimating a single peak temperature for a single printhead at a future point in time is not equivalent to "calculating an estimated peak temperature for each printhead in printing each of a plurality of cells" of a swath, as recited in claim 26 and in varying language in claims 35 and 38, or "calculating an estimated peak temperature for a printhead in printing at least one cell of the plurality of cells" as recited in claim 45, or an "ATPSS module is further configured to calculate an estimated peak temperature for the at least one printhead in printing at least one cell of a selected swath", as recited in claim 49, or "calculating an estimated peak temperature of at least one printhead in printing the at least one cell of a selected swath", as recited in claim 52.

10 The cited passages states (col. 1, line 67 through col. 2, line 9) that: "A temperature of the print chip at a future point in time is estimated based upon a number of ink drops to be emitted by the printhead before the future point in time, and the thermal resistance value associated with the printhead and/or the thermal capacitance value associated with the printhead. The estimated temperature is compared to a predetermined limit temperature. If the estimated temperature exceeds the predetermined limit temperature, the number of ink drops to be emitted by the printhead before the future point in time is reduced."

15 Further, Jones describes methods (see, e.g., col. 6, line 4 et seq.) whereby modification of shingling is employed to vary temperature behavior of printheads. Specifically, this portion of Jones states that:

More particularly, on a page in which the limit temperature will be exceeded during printing, the printer can do at least one of three things. First, the entire page can be shingled at a higher rate. Second, shingling can be performed at a first rate up until the swath in which the limit temperature will be exceeded. Then the shingling rate can be increased to a higher, second rate while printing that particular swath. The first shingling rate can be resumed after the swath of interest has been completed. Third, multi-pass printing can be performed during the swath of interest without paper motion.

Shingling refers to interlaced printing. For a 50% shingling mode (i.e., 2-pass or 50% interlace level), approximately 50% of the dots are placed on any given pass of the printhead. The candidate dots in a particular pass are selected according to a checkerboard pattern. The remaining 50% of the dots necessary to form the desired images are placed on a subsequent pass of the printhead. This is not the same as division of a swath into cells, such as cells of four inches in length (see, e.g., Applicant's specification at page 11, line 5 et seq.).

Accordingly, Jones does not teach or describe division of a swath into cells, as recited in all of Applicant's independent claims. For at least these reasons, the anticipation rejection of claims 26, 28, 30-36, 38, 39, 41, 43, 45, 47, 48-50, 52, 53 and 55 is in error and should be withdrawn, and claims 26, 28, 30-36, 38, 39, 41, 43, 45, 47, 48-50, 52, 53 and 55 should be allowed.

35 U.S.C. § 103

Claims 27, 29, 37, 40, 42, 44, 46, 51 and 54 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Jones in view of Kojima, U.S. Patent No. 5,999,204. Applicant respectfully disagrees and requests reconsideration.

5 Kojima describes an "apparatus and method for thermal image recording" (Title). Kojima states that "The improved thermal image recording method for forming an image to be recorded corresponding to image data on a thermal recording material using a thermal head, includes the steps of dividing the image to be recorded on one screen into a specified number of regions each

10 having a specified number of pixels and calculating for each of the regions a representative value of the image data within that region; calculating a predicted value of temperature for each of the regions from the representative value of the image data within that region and an initial value of temperature as detected with a specified number of thermistors; calculating a value of

15 temperature correction for each of the regions from the predicted value of temperature for that region; interpolating the values of temperature correction for the regions to calculate a value of temperature correction for each of the pixels in the image to be recorded on one screen; and performing temperature compensation on the image data of each of the pixels. The improved thermal

20 recording apparatus carries out the improved thermal recording method described above. These apparatus and method are capable of recording high quality images at high speed without uneven densities." (Abstract).

Kojima specifically states (col. 1, line 14 et seq.) that:

25 Thermal materials comprising a thermal recording layer on a substrate such as a paper or film are commonly used to record the images produced in diagnosis by ultrasonic scanning. This recording method, commonly referred to as thermal image recording, eliminates the need for wet processing and offers several advantages including convenience in handling. Hence, the use of the thermal image recording system is not limited to

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small-scale applications such as diagnosis by ultrasonic scanning and an extension to those areas of medical diagnoses such as CT, MRI and X-ray photography where large and high-quality images are required, is under review.

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As is well known, the thermal image recording apparatus uses a thermal head having a glaze in which heat generating resistors corresponding to the number of pixels of one line are arranged in one direction and, with the glaze slightly pressed against the thermal recording layer of the thermal material, the two members are moved relative to each other in a direction approximately perpendicular to the direction in which the heat generating resistors are arranged, and the respective heat generating resistors of the glaze are heated in accordance with the image to be recorded to heat the thermal recording layer imagewise, thereby accomplishing image reproduction.

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In other words, the problems to which Kojima is directed stem from the nature of thermal recording material or printing paper (heat sensitive film A, cover sheet) in that the densities or darknesses of the printed image areas are directly related to the temperature of the thermal head. Such printers utilize thermal papers or films that darken in response to heat, and do not require or employ ink and thus do not employ ink jets. These problems of thermal printers do not occur in ink jet printers, because the physics of the recording processes are so grossly different.

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Additionally, Kojima obviously teaches away from use of wet processing in order to prepare images. As a result, Kojima teaches use of printing technologies that rely on thermal imaging techniques (see, e.g., Title).

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As noted above, Jones teaches use of "shingling" techniques for thermal management issues associated with ink-jet printers. As such, Kojima teaches away from the teachings of Jones, by eschewing approaches reliant on wet processing, such as ink-based technologies. It is improper to combine teachings from references that teach away from one another, as is noted in MPEP §2145, entitled "Consideration of Applicant's Rebuttal Arguments". This MPEP section states, in portion (X)(D)(2), entitled "References Cannot Be Combined Where Reference Teaches Away from Their Combination", states

that: "It is improper to combine references where the references teach away from their combination. *In re Grasselli*, 713 F.2d 731, 743, 218 USPQ 769, 779 (Fed. Cir. 1983)".

Claim 42 recites "A process for managing temperature in a printer, comprising: preprocessing a file into a plurality of swaths; preprocessing a selected swath of the plurality of swaths into a plurality of cells; calculating an estimated peak temperature for a printhead in printing at least one cell of the plurality of cells, the calculating step comprising: estimating a number of ink drops required to print the at least one cell of the selected swath; determining a quotient of the ink drop estimate over a constant; adding the quotient to an initial temperature of the printhead; and printing the selected swath in response to the estimated peak temperature for the printhead in printing, the at least one cell being below a predetermined maximum temperature", which is not taught, disclosed, suggested or motivated by the cited references, alone or in any proper combination.

Jones clearly does not teach "preprocessing a selected swath of the plurality of swaths into a plurality of cells", as recited in claim 42, and provides no mention whatsoever of division of a swath into cells. Jones instead relies on "shingling" techniques, whereby a swath is arbitrarily divided, checkerboard fashion or otherwise, into multiple passes, i.e., re-visitation of the same section but different, and intermingled, portions of print medium, for purposes of printing. Kojima teaches that processes relying on wet chemical approaches are to be avoided. As a result, there is no motivation, as a matter of law, to combine the teachings of these references.

Furthermore, even if these teachings are somehow combined, despite lack of any instruction therein as to which elements to "pick and choose" or how this might be effectuated, the results fail to provide the subject matter of

any of Applicant's claims. Accordingly, the unpatentability rejection fails the criteria set forth in the MPEP.

Applicant notes the requirements of MPEP §2143, entitled "Basic Requirements of a Prima Facie Case of Obviousness" (see also MPEP 5 §706.02(j), entitled "Contents of a 35 U.S.C. 103 Rejection."). MPEP §2143 states that "To establish a prima facie case of obviousness, three basic criteria must be met. "

"First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings." Inasmuch as the references fail to teach or disclose the elements recited in the claims, e.g., division of a swath into cells, the references cannot provide motivation to modify their teachings to arrive at the invention as claimed, and the Examiner has identified no such teaching or disclosure in the references. As a result, the first prong of the test cannot be met.

MPEP §2143 further states that "Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations."

Inasmuch as the references fail to provide all of the features recited in 20 Applicant's claims, as noted directly hereinabove, the third prong of the test is not met. As a result, there cannot be a reasonable expectation of success. As such, the second prong of the test cannot be met.

MPEP §2143 additionally states that "The teaching or suggestion to make the claimed combination and the reasonable expectation of success must 25 both be found in the prior art, not in applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991)." This fourth criterion cannot be

met because the references fail to teach or disclose the elements recited in the claims.

Accordingly, the unpatentability rejections fail all of the criteria for establishing a prima facie case of obviousness as set forth in the MPEP. For at 5 least these reasons, the unpatentability rejection of claims 27, 29, 37, 40, 42, 44, 46, 51 and 54 is in error and should be withdrawn, and claims 27, 29, 37, 40, 42, 44, 46, 51 and 54 should be allowed.

Conclusion

Claims 26-71 are in condition for allowance. Applicant respectfully requests reconsideration and issuance of the subject application. Should any matter in this case remain unresolved, the undersigned attorney respectfully
5 requests a telephone conference with the Examiner to resolve any such outstanding matter.

Respectfully Submitted,

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